

STIC-ILL

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Sent: Friday, August 03, 2001 10:22 AM
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Subject: 08/821025

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Please send to Irene Marx, Art Unit 1651; CM1, Room 10E05, phone 308-2922, Mail box in 11B01

BRAUDE, R. 1942. J. Inst. Brew., 48:206.

whole article please

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af-390.9 IN7

JPL

Magnesium		8%
Calcium		0%
Zinc		10%
Iron		10%
Copper		50%
Vitamin D		0%
Biotin		5%
Vitamin E		0%
Pantothenic		6%
Pyridoxine		40%
Amino Acids (Content in each serving / Composition of Yeast Protein)		
Alanine	1,326 mg	7.37%
Arginine	1,047 mg	5.82%
Aspartic Acid	1,350 mg	7.5%
Cystine	213 mg	1.18%
Glutamic Acid	1,800 mg	10%
Glycine	645 mg	3.58%
Histidine	357 mg	1.98%
Isoleucine	717 mg	3.98%
Leucine	876 mg	4.87%
Lysine	882 mg	4.9%
Methionine	249 mg	1.38%
Phenylalanine	675 mg	3.75%
Proline	405 mg	2.25%
Serine	624 mg	3.47%
Threonine	957 mg	5.32%
Tryptophan	303 mg	1.68%
Tyrosine	912 mg	5.07%
Valine	912 mg	5.07%
Inositol	101.4 mg	**
Selenium	63.4 mcg	**
Choline	126 mg	**
Chromium	190 mcg	**
RNA / DNA	2.12 g	**
Potassium	633 mg	**
PABA	0.792 mg	**
Also Contains the Following Mineral and Trace Elements:		
Calcium, Chromium, Iron, Magnesium, Manganese, Molybdenum, Nickle, Potassium, Selenium, Silicon, Sodium, Zinc		
*Percent Daily Values are based on a 2,000 calorie diet.		
**Daily Value not established.		

Suggested Use:

As a nutritional supplement, 30 grams (approx. 2 rounded tablespoons) daily. Sprinkle on food; makes a crunchy delicious addition to salad, cereal, yogurt, etc. You will find many uses for this versatile product.

Product Notes:

Gluten free.

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Brewer's yeast (*Saccharomyces cerevisiae*)

Brewer's yeast (*Saccharomyces cerevisiae*) is an inactive yeast, meaning the yeasts have been killed and have no leavening power. It is the yeast remaining after beer making. It is used as a nutrient supplement to increase the intake of B vitamins. Brewer's yeast comes powdered (the most potent form), in flakes (best for health shakes), and in tablets.

Brewer's yeast and torula yeast are frequently confused with nutritional yeast. Nutritional yeast is a primary grown food crop, which means it is cultivated specifically for use as a nutritional supplement. This yeast is dried at higher temperatures than baking yeast, rendering it inactive. Unlike the live yeasts used in breadmaking and brewing, nutritional yeast has no fermenting or leavening power.

Brewer's yeast has been a staple of the health food industry since its inception. The famous health teachers all advocated brewer's yeast in one form or another because it is rich in the B-complex vitamins and other nutrients that were not available as purified nutrients in the past. Brewer's yeast still may contain nutrients that we have yet to discover. Just about every ailment imaginable can be cured by brewers yeast, according to some. There are many who say they couldn't get through the day without a tablespoon of brewers yeast mixed with tomato juice. Recently there have been negative claims, as well.

Some say yeast is the cause of a multitude of problems ranging from chronic fatigue, memory disorders, immunodeficiency, endocrine abnormalities, irritable bowel syndrome, allergies, cancer and much more.

Don't confuse this with baker's yeast, which is used to make yeast breads. Uncooked baker's yeast can rob your body of valuable B vitamins. Beneficial nutritional brewer's yeast does not contribute to yeast infections such as *Candida albicans*. Food yeasts are not infectious. Nutritional yeasts are not live yeast cells.

Brewer's yeast, which has a very bitter taste, is recovered after being used in the beer-brewing process. Brewer's yeast can also be grown specifically for harvest as a nutritional supplement. Beer yeast are contaminated with beer flavor compounds, most notably hops, and are limited in their application for yeast extract production. They can, however, be used in some qualities of commercial yeast extract. These extracts are used both to provide specific nutrients to human and animal food, and also to enhance flavor. The nutritional value of yeast extracts makes a good bacterial growth medium. In some markets, particularly Australia and the UK, specific human foodstuffs (Vegemite and Marmite) have been developed from brewer's yeast and have provided a convenient sink for surplus yeast.

Brewer's Yeast is a good source of Chromium and has been studied extensively for its medicinal properties. Chromium works to lower insulin levels and in fighting diabetes. It also has several other minerals including selenium, zinc, phosphorus, and magnesium. It is often used for loss of appetite. Supplement for chronic acne and furunculosis. Symptomatic

treatment of acute diarrhea and prophylactic treatment of diarrhea during travel.

The artificial beta cell (ABC), a closed-loop insulin delivery system, was used to determine insulin sensitivity. Progressively increasing glucose loads were administered after initial stabilization of the blood glucose at euglycemic levels such that the serum C-peptide was suppressed. The amount of insulin required to maintain euglycemia was considered a measure of sensitivity to insulin. Six stable maturity onset diabetics were studied before and after supplementation with chromium-rich brewer's yeast. All patients demonstrated an increase in sensitivity to insulin as indicated by a decrease in the fasting blood glucose concentration and a decrease in insulin requirement during the glucose challenge (P less than 0.02). The data obtained support the hypothesis that chromium or some other factor(s) present in brewer's yeast potentiates the peripheral effects of insulin. It remains to be established whether this effect occurs at the receptor or post-receptor level.

Twenty-four volunteers, mean age 78, including eight mildly non-insulin-dependent diabetics, were randomly allocated to one of two groups and were fed (daily for 8 wk) 9 g of either chromium-rich brewers' yeast (experimental) or chromium-poor torula yeast (control). Before and after yeast supplementation, the serum glucose and insulin response to 100 g oral glucose was measured at 30 min intervals for 2 h. Fasting serum cholesterol, total lipids, and triglycerides were also determined. In the total experimental group (normals + diabetics) and in both the diabetic and nondiabetic experimental subgroups, glucose tolerance improved significantly and insulin output decreased after supplementation. Cholesterol and total lipids fell significantly after supplementation in the total experimental group. The cholesterol decrease was particularly marked in hypercholesterolemic subjects (cholesterol > 300 mg/dl). In the control group, no significant change in glucose tolerance, insulin, triglycerides, or total lipids was found. Cholesterol was significantly lowered in the nondiabetic but not in the diabetic group. Thus, chromium-rich brewers' yeast improved glucose tolerance and total lipids in elderly subjects, while chromium-poor torula yeast did not. An improvement in insulin sensitivity also occurred with brewers' yeast supplementation. This supports the thesis that elderly people may have a low level of chromium and that an effective source for chromium repletion, such as brewers' yeast, may improve their carbohydrate tolerance and total lipids. The improvement in serum cholesterol in some control subjects, as well as in the total experimental group, also suggests the presence of a hypocholesterolemic factor other than chromium in both brewers' and torula yeast.

Epidemiologic observations and laboratory research have suggested that dietary selenium reduces the risk of colon cancer. Selenium-enriched brewer's yeast as a dietary supplement reduces the incidence of and mortality from cancer of the colon in humans. It is not clear whether the observed inhibitory effect is due to selenomethionine, or to other forms of selenium, or to a mixture of the selenium compounds present in selenium-enriched brewer's yeast...This study suggests that other forms of selenium or a mixture of selenium compounds present in selenium-enriched brewer's yeast need to be evaluated for their chemopreventive efficacy.

It is also a good source of protein as has been shown in this study. The purpose of this study was to increase the protein quality of tortillas supplementing them with a protein

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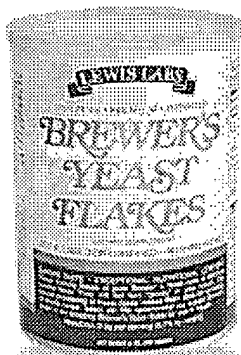
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LEWIS LABS

Brewer's Yeast Flakes

Not Blended or Fortified—Nothing Added

- 100% Pure
- Premium
- Imported
- Superb Taste
- Exceptional Nutritional Content

14 oz (397 g)

Nutripeak Price: \$9.99

MSRP: \$12.99

SAVE \$3.00 (23%)

This premium yeast is grown on sugar beets which are known to absorb nutrients from the soil faster than almost any other crop. As a result, this yeast is exceptionally rich in selenium, chromium, potassium, magnesium, sodium, copper, manganese, iron, zinc, and other factors natural to yeast.

This crunchy flakes of pure Brewer's Yeast have a delicious nut-like flavor. They will not turn "goosey" in your mouth. The special processing of these flakes makes them ideal for sprinkling on foods; cereal, salad, etc. We recommend our regular Brewer's Yeast or our amazing Brewer's Yeast Buds for use in liquids.

Nutrition Facts

Serving Size: ~ 2 Rounded Tablespoons (30 grams)

Servings Per Container: 13

	Amount Per Serving	% Daily Value*
Total Fat	0 g	0%
Saturated Fat	0 g	0%
Cholesterol	0 g	0%
Sodium	63 mg	2.6%
Total Carbohydrate	13 g	4.5%
Dietary Fiber	6 g	24%
Sugars	0 g	
Protein	16 g	
Vitamin A		0%
Folic Acid		15%
Vitamin C		0%
Vitamin B12		5%
Thiamine		80%
Phosphorus		0%
Riboflavin		90%
Iodine		0%
Niacin		50%

concentrate obtained from the yeast (*Saccharomyces cerevisiae*) cream from an alcohol distillery. Rupture of the yeast cell wall was studied, and a procedure for obtaining a high percentage of broken cells from the yeast was developed. A protein concentrate was obtained from the cell-wall free portion. Techniques were developed to obtain the protein concentrate with a low level of nucleic acids. The latter were reduced 91%, and the protein increased 55% with respect to the initial yeast. Different levels of protein concentrate were added to dough made from corn of the Nutricia variety. The resulting tortillas were submitted to a taste panel for sensory evaluation, and the results were statistically analyzed. The highest level of supplementation that did not affect negatively acceptance by the panel was 18% dry weight. In the tortillas with the highest acceptable level of supplementation, protein content increased 60% when compared to the control tortillas, and a significant improvement in lysine content was observed. Nucleic acid content was low, having been reduced to levels which did not represent a limiting factor for the use of yeast in a product destined for human consumption.

Known Hazards: Not to be used in case of yeast allergies.

Sensitive individuals may experience migraine-like headaches. Some individuals with intolerance may experience itching, urticaria, local or general exanthemas, and Quincke's edema. Oral intake of fermentable yeast may cause flatulence.

May cause an increase in blood pressure with simultaneous intake of monoamine oxidase inhibitors. Simultaneous intake of antimycotics can affect the activity of the brewer's yeast.

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Animal Feed Resources Information System[Home](#)[Previous](#)[Miscellaneous](#)[Next](#)[Photo](#)***Brewer's yeast***

Useful reference: 65

Brewer's yeast is seldom used fresh as it spoils quickly and may cause watery flesh in pigs. An excellent source of protein of high biological value and digestibility, brewer's yeast is a very valuable component of poultry and pig rations, in which it is used, however, mostly for vitamins of the B complex and for unidentified but important growth factors in poultry production. When irradiated with ultraviolet light, it also provides vitamin D. If the yeast contains hop constituents, the bitter taste makes the feed unpalatable if included in large amounts. The bitter taste can be removed by mixing the slurry with a solution of sodium hydroxide and sodium phosphate at pH 10 and 45 -50 C, after which the mixture is concentrated, washed and dried.

Brewer's yeast is usually included at levels of 2-5% in rations for pigs and poultry, but if the price of dried brewer's yeast is low, it can replace up to 80% of the animal protein in pig and poultry diets provided that additional calcium is added. Calves can be given up to 200 g per day of dried brewer's yeast, and in some cases it seems to increase the fat content of milk from cows.

The yeast is usually roller-dried, which requires such expensive machinery that the process is economical only in large breweries. The yeast can, however, be mixed with the brewer's grain and dried as a mixture in a steam-tube drier. This method increases the value of the spent grain.

Fresh yeast can be fed to cattle and pigs, who quickly get used to eating it. When large quantities are fed to swine, a mineral mixture with a high calcium and a low phosphorus content must be chosen, and vitamin B12 has to be added as well. Dairy cows may be fed 15 litres of fresh yeast daily, which will provide sufficient protein for 30 litres of milk but enough energy for only 10 litres of milk; therefore, fresh yeast should be fed together with an energy-rich low protein feed such as maize silage or root vegetables. Swine should be fed a litre of cooked or boiled yeast daily at the start of fattening, rising to 2 litres daily at the end. Fresh yeast should not be fed to suckling sows because of the danger of diarrhoea in piglets.

														As % of dry matter												
														DM	CP	CF	Ash	EE	NFE	Ca	P	Ref				
Brewer's yeast, Germany														89.1	49.9	1.5	8.5	1.3	38.8	0.13	1.56	183				
														Amino acid composition as % of crude protein												
																								Ref	505	
Arg	Cys	Gly	His	Ils	Leu	Lys	Met	Phe	Thr	Try	Tyr	Val														
		5.0	-	-	2.0	6.1	7.0	7.0	1.3	3.8	4.7	1.4	2.7	5.8												

References

65, 183, 505

Abstracts

Cattle(108), Pigs(184), Pigs(647), Pigs(685), Rabbits(269),
Sheep(594), Silage(108)